Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A system ~~System~~ of artificial intelligence for classification of events giving rise to geophysical recordings, comprising ~~several independent processing branches merged by a high level decisional system, wherein the branches are~~:

a neuro-fuzzy classifier branch[[,]] for making a decision from high level properties of events and lower level parameters extracted from signals by procedures of a signal processing type;

a fuzzy expert system branch [[,]] for ~~independently taking~~ generating a decision and explaining the ~~fuzzy expert system~~ decision to a user through an intermediary of rules selected by order of applicability of the event[[s]]; and

a neural network branch with local connections and shared weights, formed by banks of non-linear adaptable filters, ~~itself and~~ the neural network is extracting relevant information for time-frequency representations from signals corresponding to the event[[s]],

wherein the branches are automatically configured by statistical learning ~~on~~ of events in a database.

2. (Currently amended) The [[S]]system according to claim 1 ~~in which, in~~ wherein the fuzzy expert system with a gradient decrease is carried out on the parameters:

- $x = y/\sigma$
- ~~$s = \ln/2\sigma^2$)~~ $s = \ln(2\sigma^2)$
- $r = \ln(\rho)$

- d

with:

- y: position of fuzzy sets of premises
- σ: width of fuzzy sets of premises
- ρ: weights of rules
- d: degree of activation of each class for each rule
- x: convergence value of a position of the fuzzy sets of premises
- s: convergence modification of the width of fuzzy sets of premises
- r: constant weights of the rules.

3. (Currently Amended) The [[S]]system according to claim 1, in which the high level properties are a localisation, a magnitude, a time and a date.

4-7. (Canceled)

8. (New) The system according to claim 1, further comprising a decisional system module coupled with the neuro-fuzzy classifier branch, the fuzzy expert system branch and the neural network branch and configured to generate a discrimination of seismic event in response to outputs of the branches.

9. (New) A method for classifying seismic events, comprising:

receiving high level properties and low level parameters obtained from data recorded by a geophysical recording device;

generating a first decision in response to the high level properties and the low level parameters utilizing a neuro-fuzzy classifier branch;

generating a second decision in response to the high level properties and the low level parameters utilizing a fuzzy expert system branch, wherein the fuzzy expert system branch reports an explanation associated with the second decision;

obtaining information relating to time-frequency from the data corresponding to the seismic event;

generating a third decision in response to the information relating to time-frequency utilizing a neural network branch; and

classifying the seismic event in response to the first, second and third decisions.

10. (New) The method of claim 9, wherein the receiving high level properties further including receiving data relating to localisation, magnitude, time and date.

11. (New) The method of claim 9, wherein the branches further includes statistically learning on the data bases of seismic events.

12. (New) The method of claim 11, wherein said learning further includes:

a. defining a system structure;

b. initializing system internal parameters;

c. presenting a base example;

d. outputting a calculated decision;

f. calculating error by comparing expected outputs;

g. going back to step c if the first, second and third decisions fail to meet within an expected range; and

h. terminating the learning process.

13. (New) An apparatus for classifying seismic events comprising:

means for receiving high level properties and low level parameters obtained from data recorded by a geophysical recording device;

means for generating a first decision in response to the high level properties and the low level parameters utilizing a neuro-fuzzy classifier branch;

means for generating a second decision in response to the high level properties and the low level parameters utilizing a fuzzy expert system branch, wherein the fuzzy expert system branch reports an explanation associated with the second decision;

means for obtaining information relating to time-frequency from the data corresponding to the seismic event;

means for generating a third decision in response to the information relating to time-frequency utilizing a neural network branch; and

means for classifying the seismic event in response to the first, second and third decisions.

14. (New) The apparatus of claim 13, wherein the means for receiving high level properties further including means for receiving data relating to localisation, magnitude, time and date.

15. (New) The apparatus of claim 13, wherein the means for the branches further includes means for statistically learning on the data bases of seismic events.

16. (New) The method of claim 15, wherein the means for learning further includes:

a. means for a defining system structure;

b. means for initializing system internal parameters;

c. means for presenting a base example;

d. means for outputting a calculated decision;

f. means for calculating error by comparing expected outputs;

g. means for going back to step c if the first, second and third decisions fail to meet within an expected range; and

h. means for terminating the learning process.

17. An article of manufacture for use in a digital processing system for classifying seismic events, the article of manufacture comprising a digital processing system usable medium having readable program code embodied in the medium, the program code comprising:

receiving high level properties and low level parameters obtained from data recorded by a geophysical recording device;

generating a first decision in response to the high level properties and the low level parameters utilizing a neuro-fuzzy classifier branch;

generating a second decision in response to the high level properties and the low level parameters utilizing a fuzzy expert system branch, wherein the fuzzy expert system branch reports an explanation associated with the second decision;

obtaining information relating to time-frequency from the data corresponding to the seismic event;

generating a third decision in response to the information relating to time-frequency utilizing a neural network branch; and

classifying the seismic event in response to the first, second and third decisions.

18. (New) The article of manufacture of claim 17, wherein the receiving high level properties further including receiving data relating to localisation, magnitude, time and date.

19. (New) The article of manufacture of claim 17, wherein said branches further includes statistically learning on the data bases of seismic events.

20. (New) The article of manufacture of claim 19, wherein said learning further includes:

a. defining a system structure;

b. initializing system internal parameters;

c. presenting a base example;

d. outputting a calculated decision;

f. calculating error by comparing expected outputs;

g. going back to step c if the first, second and third decisions fail to meet within an expected range; and

h. terminating the learning process.